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Allogeneic Bone Marrow Transplantation in a Patient With Hypereosinophilic Syndrome

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We describe a 32-year-old man with idiopathic hypereosinophilic syndrome (HES) who presented with pulmonary dysfunction, thrombocytopenia, lymphadenopathy, and hepatosplenomegaly. The patient developed progressive disease on prednisone and hydroxyurea therapy, and he underwent a successful allogeneic bone marrow transplantation (BMT). The patient is asymptomatic with no evidence of eosinophilia 30 months after transplantation. There is currently no cure for patients with HES, and BMT should be considered in selected patients. © 1996 Wiley-Liss, Inc.

Key words: hypereosinophilic syndrome, bone marrow transplantation, human, therapy

INTRODUCTION

Idiopathic hypereosinophilic syndrome (HES) is a rare disorder of unknown etiology characterized by overproduction of eosinophils, resulting in tissue infiltration and end-organ damage. Diagnostic criteria include eosinophilia (>1,500/mm^3) of unknown etiology for 6 months or longer, and signs and symptoms of organ dysfunction attributable to the persistent eosinophilia [1]. The initiation or escalation of therapy is based upon progression of the underlying disease. Patients with evidence of cardiac, neurologic, or pulmonary involvement have a worse prognosis and should probably be started on therapy early in their course [2]. Active therapeutic agents include corticosteroids, hydroxyurea, vincristine, chlorambucil [3,4], α-interferon [5], and cyclosporin [6]. The role of bone marrow transplantation (BMT) is unknown. We describe a patient with HES and multiple organ dysfunction successfully treated with an allogeneic BMT.

CASE REPORT

The patient is a 32-year-old black man who presented with a 4-year history of fatigue, cough, dyspnea on exertion, night sweats, and intermittent blurred vision. White blood cell (WBC) count ranged from 20,000–30,000/l with persistent eosinophilia (30–65%) and a stable hemoglobin and platelet count. Over the preceding 4 years, the patient received intermittent courses of steroids and hydroxyurea. The cytotoxic therapy was discontinued from March 1992 until October 1992 at the patient's request, to allow him to have children. During this period the patient continued to have cough and night sweats. Physical examination 4 months after discontinuation of chemotherapy revealed diffuse cervical, axillary, and inguinal lymphadenopathy, and hepatosplenomegaly. A computed tomography (CT) of the abdomen showed a liver size of 21 cm, massive splenomegaly, and several enlarged paraaortic lymph nodes. WBC count was 46,000/l with 64% eosinophils, with a hemoglobin of 12 g/dl and a platelet count of 159 × 10^9/l. Pertinent laboratory evaluation included evidence of normochromic and normocytic anemia and elevated serum IgE at 116 IU (normal, 0–80 IU). A bone marrow aspirate and biopsy demonstrated an increased number of mature and immature eosinophils without blasts. Cytogenetic evaluation was normal. Pulmonary function tests revealed a decreased FEV1 (68% of predicted) and FEV1/FVC (72% of predicted), consistent with an obstructive pattern. A chest X-ray showed prominent interstitial markings consistent

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with chronic pulmonary fibrosis. The left ventricular ejection fraction was 66% on radioventriculogram (RVG).

The patient received a human leukocyte antigen (HLA)-matched allogeneic BMT from his sister after receiving 1,520 cGy total body irradiation (TBI) and cyclophosphamide 60 mg/kg/day for 2 consecutive days. Graft-vs.-host disease (GVHD) phophylaxis included cyclosporin A and methotrexate. His hospital course was significant for transient pancytopenia, febrile neutropenia, transient elevation of liver function tests, and transient azotemia. The patient was discharged 31 days after transplantation in stable condition. His absolute neutrophil count reached 500/mm^3 on day 28, and platelets leveled at 20×10^9/l, untransfused, on day 24. Six months after transplantation, the patient was asymptomatic, although adenopathy and hepatosplenomegaly persisted. Complete blood cell count showed a total WBC count of 3,000/l, with 15% eosinophils, stable Hgb, and a platelet count of 89×10^9/l. Bone marrow was mildly hypocellular without evidence of eosinophilia. Bone marrow karyotype showed only donor cells (XX). Thirty months after transplantation, the patient remains asymptomatic with a WBC count of 4,300/l and 4% eosinophils.

DISCUSSION

Our patient meets the diagnostic criteria for idiopathic hypereosinophilic syndrome, and there was no evidence of a clonal disease (normal karyotype, absence of blasts). The role of BMT in patients with idiopathic HES is unknown. Most patients have an indolent clinical course but eventually succumb to this disease, so new treatment approaches are needed. Archimbaud et al. [7] reported on a patient who underwent successful allogeneic BMT but who died 3 months after transplantation due to disseminated cytomegalovirus infection. Sigmund and Flessa [8] described a patient successfully treated with allogeneic BMT, alive and free of disease 5 years after transplantation. The decision to treat our patient with an allogeneic BMT was based on the progressive nature of his underlying disease. His symptoms resolved, and he has no evidence of eosinophilia 30 months after transplantation.

The role of BMT in patients with HES remains experimental, and further studies are needed to determine eligibility criteria and optimal timing for transplantation.

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